6.1 Trigonometric Equations

Question Paper

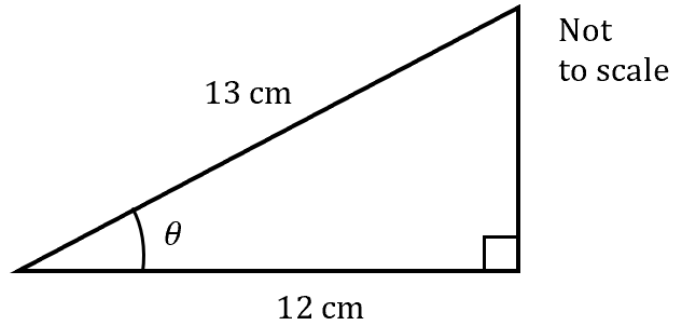| Course	Edexcel IAL Maths: Pure 2
Section	6. Trigonometry
Topic	6.1 Trigonometric Equations
Difficulty	Easy

Time allowed: 40

Score: /33

Percentage: /100

Question 1

(a) Work out the length of the missing side in the following right-angled triangle.

Not
to scale

13 cm

θ

12 cm

[2 marks]

Question 1

(b) Using your answer from part (a) to help, write down the values of the following:

    (i) $\sin \theta$

    (ii) $\cos \theta$

    (iii) $\tan \theta$

[3 marks]

Question 2

Show that

$$\frac{1 - \cos^2 x}{\tan^2 x} \equiv \cos^2 x$$

[2 marks]

Question 3

Solve the equation

$$\sin x = \frac{1}{2}, \qquad 0° \le x \le 360°$$

[3 marks]

Question 4

(a) Solve the equation $x^2 + x - 2 = 0$.

[2 marks]

Question 4

(b) Hence, or otherwise, solve the equation $\cos^2 x + \cos x - 2 = 0$ for $0° \leq x \leq 720°$.

[2 marks]

Question 5

Solve the equation $\tan 2\theta = 0.3$ for $-180° \leq \theta \leq 180°$, giving your answers to one decimal place.

[3 marks]

Question 6

(a) Sketch the graph of $y = \cos 2x$ for $0 \leq x \leq 2\pi$.

[2 marks]

Question 6

(b) Solve the equation $\cos 2x = 0.5$ for $0 \leq x \leq 2\pi$.

[2 marks]

Question 7

Solve the equation $2(1 - \cos^2 \theta) = 1$ for $-\pi \leq \theta \leq \pi$.

[4 marks]

Question 8

Solve the equation $4 - 4\sin^2 \theta = 3$ for $0° \leq \theta \leq 180°$.

[4 marks]

Question 9

Find all the solutions to the equation $2 \sin \theta = \sqrt{3}$ for $-2\pi \leq \theta \leq 2\pi$.

[4 marks]